

What is claimed is:

1. Apparatus for analyzing an audio signal with regard to  
rhythm information of the audio signal by using an  
5 autocorrelation function, comprising:

means for dividing the audio signal into at least two sub-  
band signals;

- 10 means for examining at least one sub-band signal with  
regard to a periodicity in the at least one sub-band signal  
by an autocorrelation function, to obtain rhythm raw-  
information for the sub-band signal, wherein a delay is  
associated to a peak of the autocorrelation function;

- 15 means for postprocessing the rhythm raw-information for the  
sub-band signal determined by the autocorrelation function,  
to obtain postprocessed rhythm raw-information for the sub-  
band signal, so that in the postprocessed rhythm raw-  
20 information an ambiguity in an integer plurality of a  
delay, to which an autocorrelation function peak is  
associated, is reduced, or a signal portion is added at an  
integer fraction of a delay, to which an autocorrelation  
function peak is associated; and

- 25 means for establishing the rhythm information of the audio  
signal by using the postprocessed rhythm raw-information of  
the sub-band signal and by using another sub-band signal of  
the at least two sub-band signals.

- 30 2. Apparatus according to claim 1, wherein the means for  
postprocessing comprises:

- means for calculating a version of the rhythm raw-  
35 information of a sub-band signal spread by an integer  
factor; and

means for subtracting the version of the rhythm raw-information of the sub-band signal spread by an integer factor larger than one, or a version of the rhythm raw-information of the sub-band signal derived from this  
5 version, to obtain the postprocessed rhythm raw-information for the sub-band signal.

3. Apparatus according to claim 2, wherein means for subtracting is disposed to perform, prior to subtracting, a  
10 weighting of the spread version with a factor between zero and one, to generate the derived version.

4. Apparatus according to claim 1, wherein means for postprocessing comprises:  
15 means for calculating a version of the rhythm raw-information compressed by an integer factor larger than one; and

20 means for adding the compressed version of the rhythm raw-information of the sub-band signal or a version derived therefrom to the rhythm raw-information of the sub-band signal, to obtain the postprocessed rhythm raw-information for the sub-band signal.

25 5. Apparatus according to claim 4, wherein the means for adding is disposed to perform, prior to adding, a weighting of the compressed version of the rhythm raw-information by a factor between zero and one, such that a weighted  
30 compressed version of the rhythm raw-information is added to the rhythm raw-information of the sub-band signal to generate the derived version.

6. Apparatus according to claim 1, further comprising:  
35 means for evaluating a quality of the periodicity of the postprocessed rhythm raw-information, to obtain a significance measure for the sub-band signal,

wherein means for establishing is further disposed to establish the rhythm information of the audio signal by considering the significance measure of the sub-band  
5 signal.

7. Method for analyzing an audio signal with regard to rhythm information of the audio signal by using an autocorrelation function, comprising:

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dividing the audio signal into at least two sub-band signals,

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examining at least one sub-band signal with regard to a periodicity in the at least one sub-band signal by an autocorrelation function, to obtain rhythm raw-information for the sub-band signal, wherein a delay is associated to a peak of the autocorrelation function;

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postprocessing the rhythm raw-information for the sub-band signal determined by the autocorrelation function, to obtain postprocessed rhythm raw-information for the sub-band signal, so that in the postprocessed rhythm raw-information an ambiguity in the integer plurality of a  
25 delay, to which an autocorrelation function peak is associated, is reduced, or a signal portion is added at an integer fraction of a delay, to which an autocorrelation function peak is associated; and

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establishing the rhythm information of the audio signal by using the postprocessed rhythm raw-information of the sub-band signal and by using a further sub-band signal of the at least two sub-band signals.

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8. Apparatus for analyzing an audio signal with regard to rhythm information of the audio signal by using an autocorrelation function, comprising:

means for examining the audio signal with regard to a periodicity in the audio signal, to obtain rhythm raw-information for the audio signal, wherein a delay is associated to a peak of the autocorrelation function;

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means for postprocessing the rhythm raw-information for the audio signal determined by the autocorrelation function, to obtain postprocessed rhythm raw-information for the audio signal, so that in the postprocessed rhythm raw-information a signal portion is added at an integer fraction of a delay, to which an autocorrelation function peak is associated; and

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means for establishing rhythm information of the audio signal by using the postprocessed rhythm raw-information of the audio signal.

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9. Apparatus for analyzing an audio signal with regard to rhythm information of the audio signal by using an autocorrelation function, comprising:

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means for examining the audio signal with regard to a periodicity in the audio signal, to obtain rhythm raw-information for the audio signal, wherein a delay is associated to a peak of the autocorrelation function;

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means for postprocessing the rhythm raw-information for the audio signal determined by the autocorrelation function, to obtain postprocessed rhythm raw-information for the audio signal, by subtracting a version of the rhythm raw-information weighted by a factor unequal one and spread by an integer factor larger than one; and

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means for establishing the rhythm information of the audio signal by using the postprocessed rhythm raw-information of the audio signal.

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10. Method for analyzing an audio signal with regard to rhythm information of the audio signal by using an autocorrelation function, comprising:

- 5 examining the audio signal with regard to a periodicity in the audio signal, to obtain rhythm raw-information for the audio signal, wherein a delay is associated to a peak of the autocorrelation function;
- 10 postprocessing the rhythm raw-information for the audio signal by the autocorrelation function, to obtain postprocessed rhythm raw-information for the audio signal, so that in the postprocessed rhythm raw-information a signal portion is added at an integer fraction of a delay,
- 15 to which an autocorrelation function peak is associated; and
- establishing the rhythm information of the audio signal by using the postprocessed rhythm raw-information of the audio
- 20 signal.

11. Method for analyzing an audio signal with regard to rhythm information of the audio signal by using an autocorrelation function, comprising:

- 25 examining the audio signal with regard to a periodicity in the audio signal, to obtain rhythm raw-information for the audio signal, wherein a delay is associated to a peak of the autocorrelation function;
- 30 postprocessing the rhythm raw-information for the audio signal determined by the autocorrelation function, to obtain postprocessed rhythm raw-information for the audio signal, by subtracting a version of the rhythm raw-
- 35 information weighted with a factor unequal one and spread by an integer factor larger than one; and

establishing the rhythm information of the audio signal by using the postprocessed rhythm raw-information of the audio signal.